

**PROCEDURE FOR VERIFYING SPECIFIC GRAVITY  
APPARATUS  
AASHTO T 228**

**A. PURPOSE**

This procedure is intended to give instructions for checking the physical condition of the pycnometer used in the specific gravity test.

**B. APPARATUS REQUIRED**

1. Calibrated calipers readable to 0.05 mm
2. Balance, Class B

**C. PROCEDURE:**

1. Measure the diameter of the stopper at its widest point. Measure at two (2) different points on stopper. Check stopper for chips or cracks. Report measurements to the nearest 1 mm.
2. Measure the diameter of the stopper hole. Report measurement to the nearest 0.1 mm.
3. Measure the height of the stoppers concave section. Report measurements to the nearest 0.1 mm.
4. Partially fill a 600 mL or larger Griffin low-form beaker with freshly boiled and cooled distilled water to a level that will allow the top of the pycnometer to be immersed to a depth of not less than 40 mm. Immerse the pycnometer in the beaker at an angle that will allow water to slowly enter the pycnometer without creating air bubbles. If air bubbles are present, repeat Step 4.
5. Hold stopper with index and middle finger. Slowly immerse in beaker and place on top of pycnometer. If air bubbles are present in stopper, tap lightly on top with index finger.
6. Remove pyncometer from beaker.
7. Dry the top of the stopper with one stroke of a dry towel, then quickly dry the remaining outside area of the pycnometer and weigh to the nearest 1 mm.

**D. TOLERANCE**

Pycnometer shall meet the physical requirements specified in AASHTO T 228.

## EQUIPMENT VERIFICATION RECORD

Verified By: _____	Date: _____
Equipment: <u>Specific Gravity Apparatus</u>	Location (Lab): _____
Identification No.: _____	Verification Frequency: <u>12 months</u>
Previous Verification Date: _____	Next Due Date: _____
Verification Equipment Used:    Calibrated caliper, ID # _____      Balance, ID # _____	
Verification Procedure: <u>(In-house) OMR-CVP-31 / AASHTO T 228</u>	

1. Pycnometer					
Capacity: 24-30 ml					
Physical Condition*?    Good    Fair    Poor					
Calibration					
Empty Weight (less than 40 g)					
Weight pycnometer and water					
Weight of water					
2. Stopper, ground glass, diameter 22-26 mm?					
Bottom concave and unchipped?					
Concavity 4-18 mm high at center?					
Top smooth. subs. plane?*					
Hole 1-2 mm diameter and unchipped?					

\*Opinion of inspector governs.

### 3. Thermometer:

- (a) ASTM 17 or 63 thermometer?..... \_\_\_\_\_
- (b) Other ASTM Thermometer with at least 0.1 or 0.2 F subdivisions?..... \_\_\_\_\_
- (c) Method of Checking Thermometer ..... \_\_\_\_\_
- Quality Control Thermometer Number ..... \_\_\_\_\_

### 4. Miscellaneous:

- (a) Heater? ..... \_\_\_\_\_
- (b) Beaker (600 ml or larger)?..... \_\_\_\_\_
- (c ) Analytical balance available? ..... \_\_\_\_\_

### 5. Water Bath:

- (a) Capable of  $\pm 0.1^\circ\text{C}$  ( $0.2^\circ\text{F}$ ) at test temperature?..... \_\_\_\_\_
- (b) Method of Checking: \_\_\_\_\_

### 6. Balance, Class B ..... \_\_\_\_\_